# Synology®

Deep Learning NVR
DVA3221

Scalable surveillance platform for proactive threat management and business analytics

Synology NVR DVA3221 is an on-premises 4-bay desktop NVR solution that integrates Synology's deep learning-based algorithms to provide a fast, smart, and accurate video surveillance solution. Built-in support for push notifications keeps users informed of possible intrusions, while the automated video surveillance system helps safeguard properties by detecting people, vehicles, and anonymous objects in designated areas.

Highlights

- **Easy and Flexible Integration**
  Roll out or upgrade surveillance deployments in no time with support for over 8,300 IP cameras, H.264/H.265, and 4K resolution[1]
- **Deep Video Analytics**
  Leverage congestion alerts, facial recognition, people & vehicle detection, people counting, vehicle counting, visitor trends, intrusion detection, and license plate recognition[2]
- **Centralized Management System**
  Operate and manage recording servers centrally as part of larger deployments, replicate footage, and perform remote updates
- **Dual Recording Support**
  Boost system redundancy and access footage during downtime with dual recording from cameras to a second server or C2 Surveillance[3]
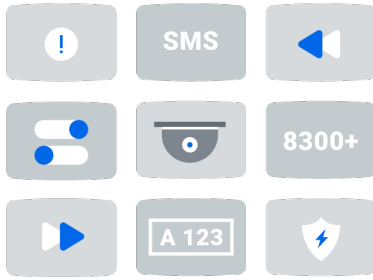
Safeguarding Your Assets

Surveillance Station delivers intelligent monitoring and video management tools to protect your property and assets.
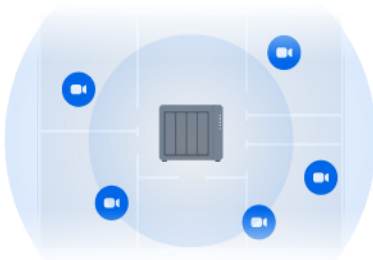
Scale Up With Ease

Through its comprehensive and flexible tools, Surveillance Station streamlines the process of adding and configuring large numbers of cameras.

Complete Surveillance Solution With Built-in AI Capabilities

Supported by a complete suite of configuration, monitoring, and management tools and bolstered by powerful AI-enabled surveillance analytics, the DVA3221 provides everything you need to create an efficient surveillance system for your site.

- **Cover all angles**: Record and manage up to 32 IP camera feeds[4]
- **Leverage deep learning**: Run 12 simultaneous real-time video analysis processes[2]
- **Licenses included**: Add up to 8 IP cameras without purchasing additional licenses[4]
- **Expandable solution**: Increase storage capacity with up to 10 extra drive bays using two Synology DX517 Expansion Units

## Assisted Camera Provisioning for Fast Deployment

Leverage simple camera onboarding wizards and camera configuration importing functionalities to step up the protection of large deployments quickly and easily.

- **Find and add cameras**: Automatically locate cameras within specified IP ranges for a streamlined process
- **Import by batch**: Migrate and batch-import camera configurations in just one go using spreadsheets
- **Copy settings**: Quickly replicate settings between cameras to easily expand your existing installation

Everything You Need in Monitor Center

Quickly view your business from all angles, see where and when issues were detected, or spin back time to get to the bottom of things without ever leaving your main overview.

- **Combined view**: Monitor feeds in real time and seamlessly scrub through the timeline to investigate events, all in the same interface
- **Flexible layout**: Drag and drop, resize, and even swap video feeds freely to create a monitoring dashboard that fits your needs
- **I/O widgets**: Move essential controls to your dashboard to easily initiate actions, such as activating sirens and speakers or locking and unlocking doors
- **Automated alerts**: Keep a real-time list of detected events across your deployment conveniently on hand and click to synchronize all camera playbacks to each time point
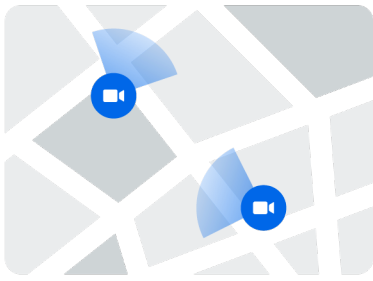
Your Cameras at a Glance

With Maps, you can know at a glance where cameras are placed, events are triggered, and more with an intuitive multi-floor and multi-site map view.

Better Situational Awareness With Maps

Dynamic maps not only help you determine camera and event locations, but also provide instant access to video feeds for more efficient site monitoring.

- **Multi-location alerts**: Preview triggered events directly on the map with automatic zoom features to bring the most important views into focus
- **Multi-floor layouts**: Group floor plans together for a clearer understanding of where cameras are located and events happen
- **Online map integration**: Directly overlay your cameras and building layouts onto Google Maps or OpenStreetMap for better situational awareness even across multiple or larger sites

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Smarter Site Security

Synology DVA and Surveillance Station elevate video surveillance into a real-time security solution, providing instant feedback and notifications.

Actionable Insights and Automated Actions

Advanced deep learning-based algorithms built into the DVA3221 convert unstructured video data into business intelligence and security insights, to bolster and automate security.

- **Facial recognition**: Instantly identify people from a custom database with an accuracy of 97.04%[5]
- **People and vehicle detection**: Notify staff when people or vehicles loiter in a predefined area, such as a no-parking zone or near a storefront
- **People and vehicle counting**: Count the number of people or vehicles entering and leaving an area using bidirectional counters for safety or analysis purposes
- **Intrusion detection**: Detect when people or vehicles cross a perimeter line and issue alerts to warn of potential intrusions
- **License plate recognition**: Monitor vehicles entering and leaving your premises, with the option to preconfigure different automated actions for allowed or blocked vehicles[6]
- **Congestion alerts**: Avoid overcrowding in designated areas by detecting when the number of people transiting or staying within a self-defined perimeter crosses a set threshold

Surveillance on the Go

With DS cam, you can watch surveillance video feeds, take snapshots, zoom in and adjust camera position with PTZ controls, browse through recorded events, use two-way audio to communicate, and receive alerts while on the go.
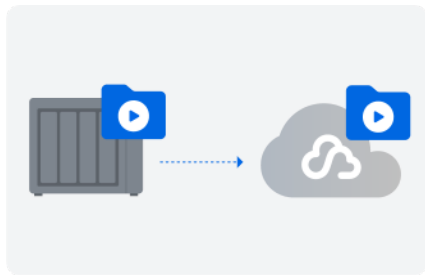
Redundancy Options

Keep access to crucial surveillance footage following the destruction or disconnection of your device with video backup, recording failover, and dual recording to a secondary server or C2 Surveillance.

Powerful Video Management Platform

Powered by Synology Surveillance Station running on Synology DSM, the DVA3221 offers powerful and convenient video recording, management, and analysis capabilities while making deployment of new or existing cameras fast and efficient.

- **Complete data ownership with zero subscription fees**: All DVA3221 recordings are privately stored on the unit itself, free of charge
- **Works with more than 8,300 cameras**: Avoid vendor lock-in. Choose from a wider range of camera options to suit your requirements with ONVIF support[1] and rapidly add or migrate devices in batch
- **Remote monitoring and control**: Access your surveillance system from anywhere with browser-based access, desktop clients, and mobile apps
- **Automation & notification**: Set up custom actions when predefined events occur, such as taking snapshots when motion is detected or opening a door when the system recognizes faces from the database. Get notified with e-mail, SMS, or push notifications so that you can respond in a timely manner
- **Secure streams and storage**: Use HTTPS and SRTP capable cameras to protect video streams against eavesdropping[7], and encrypt video recordings with a special password to limit access to archives

Central Surveillance Management

Monitor, manage, and protect multiple Synology Deep Learning NVR and NAS systems from a single interface as part of a larger surveillance network over multiple sites with Surveillance Station Centralized Management Server (CMS).

- **Centralized monitoring**: View and analyze streams from cameras connected to any of your recording servers in your central management host's Monitor Center
- **Remote updates**: Check for and remotely install updates on all your systems directly from CMS for both offline and online servers
- **Recording failover**: Configure N+M failover to automatically switch over recording tasks to alternative servers in case of emergency for maximum service availability[8]
- **Data protection**: Back up footage between servers with Archive Vault or use Dual Recording to record footage on two servers simultaneously

Hardware Overview

Front
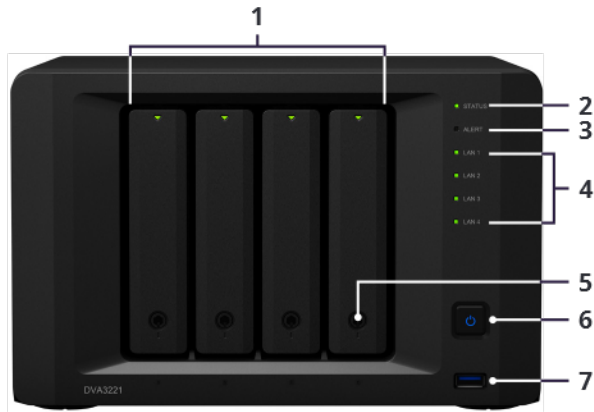
Rear
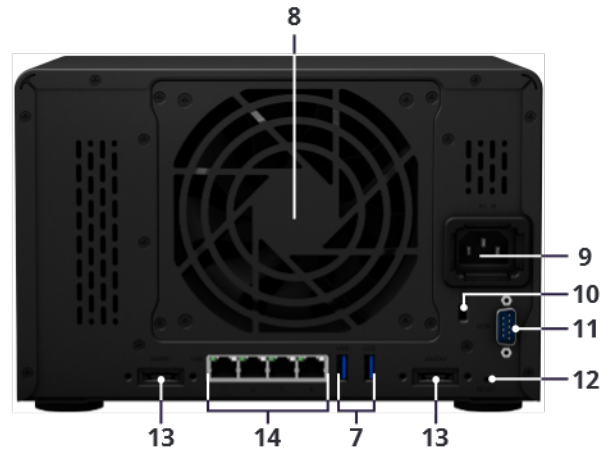
1	Drive tray and status indicator	2	Status indicator	3	Alert indicator	4	LAN indicator
5	Drive tray lock	6	Power button and indicator	7	USB 3.2 Gen 1 port	8	System fan
9	Power port	10	Kensington Security Slot	11	Console port	12	Reset button
13	eSATA port	14	1GbE RJ-45 port				

Technical Specifications

Hardware

CPU	Intel® Atom C3538 Quad-core 2.1GHz
Hardware encryption engine	Yes (AES-NI)
GPU	NVIDIA® GeForce® GTX 1650[9]
Memory	8 GB DDR4 non-ECC SO-DIMM (4 GB x 2; expandable up to 32 GB with 16 GB ECC SO-DIMM x 2)[10]
Compatible drive type	4 x 3.5" or 2.5" SATA HDD/SSD (drives not included)
Hot swappable drive	Yes
External port	• 3 x USB 3.2 Gen 1 port • 2 x eSATA port
Size (HxWxD)	166 x 250 x 237 mm
Weight	4.92 kg
LAN port	4 x 1GbE RJ-45
Wake on LAN/WAN	Yes
Scheduled power on/off	Yes
System fan	1 (120 x 120 x 25 mm)
AC input power voltage	100V to 240V AC
Power frequency	50/60Hz, single phase
Operating temperature	0°C to 40°C (32°F to 104°F)
Storage temperature	-20 °C to 60 °C (-5 °F to 140 °F)
Relative humidity	5% to 95% RH
Maximum operating altitude	5,000 m (16,400 ft)

General DSM specification

Networking protocol	SMB, AFP, NFS, FTP, WebDAV, CalDAV, iSCSI, Telnet, SSH, SNMP, VPN (PPTP, OpenVPN™, L2TP)
File system	• Internal: Btrfs, ext4 • External: Btrfs, ext4, ext3, FAT, NTFS, HFS+, exFAT[11]
Supported RAID type	Synology Hybrid RAID (SHR), Basic, JBOD, RAID 0, RAID 1, RAID 5, RAID 6, RAID 10
Storage management	• Maximum single volume size: 108TB • Maximum system snapshots: 65,536[12] • Maximum internal volume: 64
SSD cache	Read/write cache support
File sharing capability	• Maximum local user account: 2,048 • Maximum local group: 256 • Maximum shared folder: 512 • Maximum concurrent SMB/NFS/AFP/FTP connection: 2,000
Privilege	Windows Access Control List (ACL), application privileges
Directory service	Windows® AD integration: Domain users login via SMB/NFS/AFP/FTP/File Station, LDAP integration
Security	Firewall, shared folder encryption, SMB encryption, FTP over SSL/TLS, SFTP, rsync over SSH, login auto block, Let's Encrypt support, HTTPS (customizable cipher suite)
Supported browser	Chrome®
Interface language	English, Deutsch, Français, Italiano, Español, Dansk, Norsk, Svensk, Nederlands, Русский, Polski, Magyar, Português do Brasil, Português Europeu, Türkçe, Český, ภาษาไทย, 日本語, 한국어, 繁體中文, 简体中文

Surveillance Station

Maximum IP camera	• 32 channels (total of 960 FPS at 720p, H.264), including a maximum of 12 real-time Deep Video Analytics tasks[13] • 8 free camera licenses included; additional cameras require the purchasing of additional licenses
Deep video analytics feature	• Face recognition • People counting • People and vehicle detection • Intrusion detection • License Plate Recognition • Vehicle counting
IP Camera support	• Video codec: H.264, H.264+, H.265, H.265+, MJPEG, MPEG-4, and MxPEG (not supported by Deep Video Analytics tasks) • Audio codec: PCM, AMR, G.711, and G.726 • Camera bit-rate fine-tuning via constant and variable bit-rate control • ONVIF™ 2.6, Profile S certified, Profile G for edge recording
Live View	• Pan Tilt Zoom (PTZ) support with configurable PTZ speed • On-screen camera controls: camera zoom, focus, iris adjustment, auto pan, and auto object tracking • E-Map, Snapshot, and Snapshot Editor supported for instant editing after taking a snapshot • Video quality settings: bit-rate control, image quality, resolution, and FPS • Joystick support for easy navigation • Alert panel for a quick display of the most recently triggered events • Customizable layout and sequential camera view support
Recording	• Supported recording modes: manual, continuous, motion detection, I/O alarm, action rule, and customized • Recording formats: MP4 • The customized recording mode can be configured as a combination of conditional events, including motion detection, audio detection, tampering detection, and alarm input • Edge recording on the SD card of certain supported cameras • Configurable pre-recording and post-recording time
Playback	• Customizable layouts for playback in Timeline • Playback controls include pause, stop, previous recording, next recording, fast forward, slow motion, frame by frame, and digital zoom in/out • Embedded watermark for evidence integrity • Image enhancements including brightness, contrast, saturation, and sharpness (web client only)
Management	• Create and manage different user privileges • Rotate recorded videos by archived days or storage size • Event notification supported via SMS, E-mail, and mobile devices via DS cam • Recordings can be backed up to an external storage or remote server • Built-in NTP server • Supported tunnel: MPEG-4, H264 via RTSP over TCP, UDP, and HTTP
iOS/Android™ applications	Synology LiveCam, DS cam, DS file, DS finder
Surveillance desktop client support	Windows® 7 onwards, macOS® 10.12 onwards

Environment and Packaging

Environment safety	RoHS compliant
Package content	• 1 x DVA3221 main unit • 1 x Quick Installation Guide • 1 x Accessory pack • 1 x AC power cord • 2 x RJ-45 LAN cable
Optional accessories	• 16 GB DDR4 ECC SO-DIMM (D4ECSO-2666-16G) • Synology Expansion Unit DX517 • Surveillance Device License Pack
Warranty	3 years[14]

*Model specifications are subject to change without notice. Please refer to www.synology.com for the latest information.

1. Surveillance Station supports ONVIF Profile S and Profile G, as well as H.265 in Profile T. Check our **compatibility list** for all supported cameras. DVA3221 supports 4K resolution cameras; 4K video output is not supported..
2. Facial Recognition, License Plate Recognition, and certain Intrusion Detection settings consume system resources equivalent to 2 DVA tasks. A maximum of 6 of these tasks can be run at once. When recording in 4K quality, the maximum number of DVA tasks is limited to 8. **Learn more**
3. Dual recording to C2 Surveillance requires purchase of an annual **subscription**. A free trial is available for each Synology Account.
4. The DVA3221 comes with 8 camera licenses. Support for more cameras requires **additional license**.
5. Testing by the National Institute of Standards and Technology (NIST) under their Face Recognition Vendor Test (FRVT), WILD dataset. The DVA3221 supports up to 12 Deep Video Analytics tasks. However, the actual number may vary depending on which tasks are activated, as well as on the resolution of the cameras being utilized. **Learn more**
6. License plate recognition supports license plates that contain numeric and alphanumeric characters. Higher recognition accuracy is available for French, German, Swiss, United States, and Taiwan license plates. Please check this **article** for an up-to-date list of supported license plates.
7. Encryption of video streams requires compatible SRTP or HTTPS capable IP cameras. Check our **compatibility list** for models.
8. Deep Video Analytics and Face Recognition are not supported on servers running as failover servers.
9. Display output is not supported.
10. DVA3221 comes with 8 GB DDR4 non-ECC SO-DIMM (2 x 4 GB) pre-installed. The non-ECC memory modules must be removed before the optional ECC memory modules can be installed.
11. exFAT Access can be installed for free from Package Center in DSM 7.0. In DSM 6.2 or earlier versions, exFAT Access needs to be purchased in Package Center.
12. System snapshots include snapshots taken by SAN Manager, Snapshot Replication, and Virtual Machine Manager. Availability of these packages varies by model.
13. DVA3221 models support up to 12 Deep Video Analytics tasks. However, the actual number may vary depending on which tasks are activated, as well as on the resolution of the cameras being utilized. **Learn more**
14. The warranty period starts from the purchase date as stated on your receipt of purchase. **Learn more** about our limited product warranty policy.